

**ICF International**

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MEMORANDUM

TO: Karen Jurist, Remedial Project Manager  
 Site Cleanup Section 3, SFD-7-3  
 USEPA Region 9

THROUGH: Joe Eidelberg, Chemist  
 Quality Assurance (QA) Program, MTS-3  
 USEPA Region 9

*Joseph Eidelberg*  
 Digitally Signed

FROM: Kathy O'Brien, Project Manager  
 Environmental Services Assistance Team (ESAT) Region 9  
 ICF International

ESAT Contract No.: EP-W-13-029  
 Technical Direction Form No.: 10106079

DATE: June 3, 2015

SUBJECT: Review of Analytical Data, **Tier 3**

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

Site:	Jervis B. Webb Co.
Site Account No.:	09 WR QB 00
Case No.:	45139
SDG No.:	MY9SN2 and MY9SN3
Laboratory:	Chemtech Consulting Group (CHEM)
Analysis:	CLP Metals by ICP-MS, ICP-AES, and Mercury
Samples:	20 Soil Samples
Collection Date:	March 9, 2014
Reviewer:	Anna Pajarillo, ESAT

EXES Data Manager has been updated; the dynamic deliverables were regenerated and are available on the SMO Portal.

If there are any questions, please contact Joe Eidelberg (QA Program/EPA) at (415) 972-3809.

Attachment

cc: Kim Brandon-Bazile, CLP PO USEPA Region 2  
 Steve Remaley, CLP PO USEPA Region 9  
 Richard Bauer, EPA COR for ESAT Region 9

CLP PO:  FYI  Action  
 SAMPLING ISSUES:  Yes  No

10106079-18009/45139/MY9SN2\_MY9SN3\_RPT



## Data Validation Report – Tier 3

Case No.: 45139  
SDG No.: MY9SN2 and MY9SN3  
Site: Jervis B. Webb Co.  
Laboratory: Chemtech Consulting Group (CHEM)  
Analysis: CLP Metals by ICP-MS, ICP-AES, and Mercury  
Reviewer: Anna Pajarillo, ESAT  
Date: June 3, 2015

### I. SDG SUMMARY

For Sample Information and Laboratory Quality Control (QC), refer to EXES National Functional Guideline (NFG) Report #06, *Analytical Sample Listing*.

#### Field QC

Field Blanks (FB): None Provided  
Equipment Blanks (EB): None Provided  
Background Samples (BG): None Provided  
Field Duplicates (D1): MY9SN5 and MY9SN6  
Field Duplicates (D2): MY9SP5 and MY9SP6  
Field Duplicates (D3): MY9SP8 and MY9SP9

#### Tables

1A: Analytical Results with Qualifications  
1B: Data Qualifier Definitions for Inorganic Data Review

#### CLP PO Action

Nondetected results for antimony in all samples are qualified as rejected (R) due to a matrix spike recovery below 30% (see Comment A).

#### Sampling Issues

None.

#### Additional Comments

The soil samples were analyzed for Contract Laboratory Program (CLP) metals. Aluminum, calcium, iron, magnesium, potassium, and sodium were analyzed by Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES). Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, silver, thallium, vanadium, and zinc were analyzed by Inductively Coupled Plasma-Mass Spectroscopy (ICP-MS). Mercury was analyzed by Cold Vapor Atomic Absorption.

No sample was designated for laboratory QC on the chain-of-custody records (COCs). The laboratory performed laboratory duplicate, matrix spike, and serial dilution analyses on sample MY9SN2.

The certificate of analysis for Cobalt solution Lot# H2-CO02063 was missing in the data package. The laboratory submitted the missing pages upon request, on 05/28/15. All standards and spiking solutions were analyzed before the expiration date.

All method requirements specified in the EPA CLP Inorganic Statement of Work (SOW), except as noted, have been met.

This report was prepared in accordance with the following documents:

- USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration) ISM01.2, January 2010;
- Modifications Updating ISM01.2 to ISM01.3; and
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010.

For technical definitions, refer to *Exhibit G (Glossary of Terms)*, USEPA Contract Laboratory Program Statement of Work for Inorganic Superfund Methods (Multi-Media, Multi-Concentration) ISM01.3.

## II. VALIDATION SUMMARY

The data were evaluated based on the following parameters:

	<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1.	Data Completeness	Yes	
2.	Preservation and Holding Times	Yes	
3.	ICP-MS Tune Analysis	Yes	
4.	Calibration	Yes	
	a. Initial	Yes	
	b. Initial and Continuing Calibration Verification	Yes	
5.	Blanks	Yes	C
6.	ICP Interference Check Sample (ICS)	Yes	
7.	Laboratory Control Sample (LCS)	Yes	
8.	Duplicate Sample Analysis	Yes	
9.	Spike Sample Analysis	No	A,D
10.	ICP Serial Dilution	No	E
11.	ICP-MS Internal Standards	Yes	
12.	Field Duplicate Sample Analysis	No	F
13.	Sample Quantitation	Yes	B
14.	Overall Assessment	Yes	

## III. VALIDITY AND COMMENTS

A. The following nondetected results are rejected and flagged “R” in Table 1A due to a matrix spike recovery below 30%.

- Antimony in all samples.

The matrix spike recovery is <30% for antimony in QC sample MY9SN2S as listed below.

Analyte	% Recovery
Antimony	29

The nondetected results for antimony are unusable.

The following post-digestion spike recovery for antimony was reported in QC sample MY9SN2A.

Analyte	Post-Digestion Spike, % Recovery
Antimony	90

Since the post-digestion spike recovery is acceptable, the unacceptable pre-digestion spike recovery may indicate poor laboratory technique or matrix effects which may interfere with the analysis. The post-digestion spike recovery does not reflect the entire sample preparation and analysis; the impact on reported results cannot be determined.

- B. Results above the method detection limit (MDL) but below the contract required quantitation limit (CRQL) are estimated and flagged “J” in Table 1A. Results are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in analytical precision near the quantitation limit.
- C. The following results are qualified as non-detected (U) in Table 1A due to low level initial calibration blank (ICB) and continuing calibration blank (CCB) contamination.
  - Antimony in all samples and preparation blank PBS04.

Analyte amounts greater than the MDL but less than the CRQL were found in the following blanks at the concentrations presented below.

Analyte	Blank	Concentration, µg/L
Antimony	ICB67	0.48
	CCB84-CCB89	0.45-0.53

Sample results that are greater than or equal to the MDL but less than or equal to the CRQL are reported as non-detected (U) at the respective CRQL.

- D. The following detected results are estimated low and flagged “J-” in Table 1A because matrix spike recovery is outside of method QC limit.
  - Copper in all samples.

The matrix spike recovery for copper does not meet the 75-125% criterion for accuracy in QC sample MY9SN2S as listed below.

Analyte	% Recovery
Copper	59

Detected results for copper in all samples are considered quantitatively uncertain and may be biased low.

The following post-digestion spike recovery for copper was reported in QC sample MY9SN2A.

Analyte	Post-Digestion Spike, % Recovery
Copper	89

Since the post-digestion spike recovery is acceptable, the unacceptable pre-digestion spike recovery may indicate poor laboratory technique or matrix effects which may interfere with the analysis. The post-digestion spike recovery does not reflect the entire sample preparation and analysis; the impact on reported results cannot be determined.

E. The following results are estimated and flagged “J” in Table 1A because serial dilution results are outside method QC limit.

- Beryllium and cobalt in all samples.

Percent differences for serial dilution analysis of MY9SN2L do not meet the 10% difference criterion for the analytes presented below.

Analyte	% Difference
Beryllium	12
Cobalt	17

Beryllium and cobalt results in all samples are considered quantitatively uncertain. Chemical and physical interferences may exist due to sample matrix effects. Since results for the diluted sample are higher than the original, the reported results may be biased low.

F. Results for the following field duplicate pair do not meet the relative percent difference (RPD) criterion of 35% for precision as presented below.

MY9SN5 and MY9SN6 (D1)	
Analyte	RPD (%)
Aluminum	52
Barium	44
Chromium	50
Cobalt	44
Copper	40
Nickel	44
Vanadium	55
Zinc	42

Results for the following field duplicate pair do not meet the absolute difference criterion for precision as listed below.

Analyte	MY9SN5 (D1), mg/kg	MY9SN6 (D1), mg/kg	Difference, mg/kg	Limit, mg/kg
Arsenic	2.6	1.5	1.1	1.0
Lead	6.1	2.4	3.7	1.0
Sodium	2120	445	1675	1000

The effect on data quality is not known.

Lab Chemtech Consulting Group (CHEM)

SDGs MY9SN2 and MY9SN3

Case 45139

Site Jervis B. Webb Co.

SOW ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No: Sample Location: Sample Type: Matrix/Level: %Solids Units :	MY9SN2				MY9SN3				MY9SN4				MY9SN5 D1						
	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method			
N/A Field_Sample Soil/Low 93.4 mg/kg					N/A Field_Sample Soil/Low 93.2 mg/kg					N/A Field_Sample Soil/Low 86 mg/kg					N/A Field_Sample Soil/Low 82.2 mg/kg				
Aluminum	9260			ICP_AES	7180			ICP_AES	12600			ICP_AES	16400		F	ICP_AES			
Antimony	0.76	R	A,C	ICP_MS	0.73	R	A,C	ICP_MS	0.81	R	A,C	ICP_MS	0.91	R	A,C	ICP_MS			
Arsenic	1.9			ICP_MS	0.67			ICP_MS	0.56			ICP_MS	2.6		F	ICP_MS			
Barium	93.6			ICP_MS	66.2			ICP_MS	41.6			ICP_MS	148		F	ICP_MS			
Beryllium	0.26	J	B,E	ICP_MS	0.19	J	B,E	ICP_MS	0.13	J	B,E	ICP_MS	0.59	J	E	ICP_MS			
Cadmium	0.26	J	B	ICP_MS	0.19	J	B	ICP_MS	0.050	J	B	ICP_MS	0.17	J	B	ICP_MS			
Calcium	4680			ICP_AES	4410			ICP_AES	6490			ICP_AES	6980			ICP_AES			
Chromium	12.1			ICP_MS	8.4			ICP_MS	5.0			ICP_MS	18.6		F	ICP_MS			
Cobalt	6.0	J	E	ICP_MS	4.5	J	E	ICP_MS	3.3	J	E	ICP_MS	10.2	J	E,F	ICP_MS			
Copper	32.7	J-	D	ICP_MS	8.7	J-	D	ICP_MS	5.5	J-	D	ICP_MS	26.4	J-	D,F	ICP_MS			
Iron	18500			ICP_AES	14900			ICP_AES	22300			ICP_AES	26000			ICP_AES			
Lead	22.6			ICP_MS	3.1			ICP_MS	1.3			ICP_MS	6.1		F	ICP_MS			
Magnesium	5140			ICP_AES	3950			ICP_AES	6170			ICP_AES	7870			ICP_AES			
Manganese	277			ICP_MS	197			ICP_MS	121			ICP_MS	336			ICP_MS			
Mercury	0.051	J	B	Hg	0.023	J	B	Hg	0.035	J	B	Hg	0.079	J	B	Hg			
Nickel	10.7			ICP_MS	6.3			ICP_MS	3.9			ICP_MS	14.1		F	ICP_MS			
Potassium	3100			ICP_AES	2810			ICP_AES	4340			ICP_AES	4000			ICP_AES			
Selenium	0.045	J	B	ICP_MS	1.8	U		ICP_MS	2.0	U		ICP_MS	2.3	U		ICP_MS			
Silver	0.055	J	B	ICP_MS	0.012	J	B	ICP_MS	0.0089	J	B	ICP_MS	0.038	J	B	ICP_MS			
Sodium	306	J	B	ICP_AES	201	J	B	ICP_AES	307	J	B	ICP_AES	2120		F	ICP_AES			
Thallium	0.12	J	B	ICP_MS	0.10	J	B	ICP_MS	0.056	J	B	ICP_MS	0.20	J	B	ICP_MS			
Vanadium	26.7			ICP_MS	17.9			ICP_MS	11.3			ICP_MS	49.6		F	ICP_MS			
Zinc	62.8			ICP_MS	35.6			ICP_MS	18.4			ICP_MS	68.2		F	ICP_MS			

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample.

Lab Chemtech Consulting Group (CHEM)

SDGs MY9SN2 and MY9SN3

Case 45139

Site Jervis B. Webb Co.

SOW ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No:	MY9SN6 D1				MY9SN7				MY9SN8				MY9SP5 D2			
Sample Location:	N/A															
Sample Type:	Field_Sample															
Matrix/Level:	Soil/Low															
% Solids	88.3				80.3				94.1				92.2			
Units :	mg/kg															
Compound	Result	Flag	Com	Method												
Aluminum	9640		F	ICP_AES	16800			ICP_AES	7830			ICP_AES	7910			ICP_AES
Antimony	0.78	R	A,C	ICP_MS	0.88	R	A,C	ICP_MS	0.79	R	A,C	ICP_MS	0.80	R	A,C	ICP_MS
Arsenic	1.5		F	ICP_MS	2.5			ICP_MS	10.1			ICP_MS	0.72			ICP_MS
Barium	94.3		F	ICP_MS	188			ICP_MS	81.3			ICP_MS	69.0			ICP_MS
Beryllium	0.24	J	B,E	ICP_MS	0.59	J	E	ICP_MS	0.19	J	B,E	ICP_MS	0.16	J	B,E	ICP_MS
Cadmium	0.096	J	B	ICP_MS	0.25	J	B	ICP_MS	0.046	J	B	ICP_MS	0.087	J	B	ICP_MS
Calcium	5600			ICP_AES	14200			ICP_AES	5010			ICP_AES	4330			ICP_AES
Chromium	11.2		F	ICP_MS	21.9			ICP_MS	7.4			ICP_MS	7.8			ICP_MS
Cobalt	6.5	J	E,F	ICP_MS	12.3	J	E	ICP_MS	5.0	J	E	ICP_MS	4.8	J	E	ICP_MS
Copper	10.9	J-	D,F	ICP_MS	26.8	J-	D	ICP_MS	7.6	J-	D	ICP_MS	8.4	J-	D	ICP_MS
Iron	19400			ICP_AES	25400			ICP_AES	15100			ICP_AES	15900			ICP_AES
Lead	2.4		F	ICP_MS	6.1			ICP_MS	1.8			ICP_MS	3.0			ICP_MS
Magnesium	5780			ICP_AES	8670			ICP_AES	4600			ICP_AES	4370			ICP_AES
Manganese	236			ICP_MS	600			ICP_MS	209			ICP_MS	187			ICP_MS
Mercury	0.022	J	B	Hg	0.092	J	B	Hg	0.042	J	B	Hg	0.022	J	B	Hg
Nickel	9.0		F	ICP_MS	17.2			ICP_MS	6.2			ICP_MS	6.1			ICP_MS
Potassium	3210			ICP_AES	4070			ICP_AES	2440			ICP_AES	3190			ICP_AES
Selenium	2.0	U		ICP_MS	0.14	J	B	ICP_MS	0.071	J	B	ICP_MS	0.046	J	B	ICP_MS
Silver	0.0099	J	B	ICP_MS	0.038	J	B	ICP_MS	0.0096	J	B	ICP_MS	0.011	J	B	ICP_MS
Sodium	445		F	ICP_AES	2250			ICP_AES	593			ICP_AES	222	J	B	ICP_AES
Thallium	0.15	J	B	ICP_MS	0.21	J	B	ICP_MS	0.11	J	B	ICP_MS	0.10	J	B	ICP_MS
Vanadium	28.3		F	ICP_MS	46.5			ICP_MS	19.6			ICP_MS	18.2			ICP_MS
Zinc	44.5		F	ICP_MS	74.8			ICP_MS	33.1			ICP_MS	34.6			ICP_MS

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample.

Lab Chemtech Consulting Group (CHEM)

SDGs MY9SN2 and MY9SN3

Case 45139

Site Jervis B. Webb Co.

SOW ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No: Sample Location: Sample Type: Matrix/Level: % Solids Units :	MY9SP6 D2				MY9SP7				MY9SP8 D3				MY9SP9 D3			
	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method
N/A Field_Sample Soil/Low 91.8 mg/kg					N/A Field_Sample Soil/Low 92.6 mg/kg				N/A Field_Sample Soil/Low 85.3 mg/kg				N/A Field_Sample Soil/Low 85.7 mg/kg			
Aluminum	7900			ICP_AES	6410			ICP_AES	13700			ICP_AES	13900			ICP_AES
Antimony	0.78	R	A,C	ICP_MS	0.78	R	A,C	ICP_MS	0.86	R	A,C	ICP_MS	0.83	R	A,C	ICP_MS
Arsenic	0.64			ICP_MS	0.60			ICP_MS	1.8			ICP_MS	1.7			ICP_MS
Barium	66.1			ICP_MS	66.5			ICP_MS	121			ICP_MS	113			ICP_MS
Beryllium	0.16	J	B,E	ICP_MS	0.15	J	B,E	ICP_MS	0.41	J	B,E	ICP_MS	0.39	J	B,E	ICP_MS
Cadmium	0.073	J	B	ICP_MS	0.060	J	B	ICP_MS	0.16	J	B	ICP_MS	0.16	J	B	ICP_MS
Calcium	4390			ICP_AES	3280			ICP_AES	7090			ICP_AES	7260			ICP_AES
Chromium	7.2			ICP_MS	6.4			ICP_MS	15.8			ICP_MS	15.2			ICP_MS
Cobalt	4.4	J	E	ICP_MS	4.6	J	E	ICP_MS	9.9	J	E	ICP_MS	9.0	J	E	ICP_MS
Copper	7.5	J-	D	ICP_MS	6.3	J-	D	ICP_MS	18.3	J-	D	ICP_MS	17.3	J-	D	ICP_MS
Iron	15900			ICP_AES	12900			ICP_AES	23300			ICP_AES	23400			ICP_AES
Lead	2.8			ICP_MS	1.7			ICP_MS	4.4			ICP_MS	3.9			ICP_MS
Magnesium	4340			ICP_AES	3480			ICP_AES	7060			ICP_AES	7080			ICP_AES
Manganese	177			ICP_MS	173			ICP_MS	411			ICP_MS	366			ICP_MS
Mercury	0.031	J	B	Hg	0.026	J	B	Hg	0.039	J	B	Hg	0.041	J	B	Hg
Nickel	5.5			ICP_MS	5.1			ICP_MS	12.6			ICP_MS	11.9			ICP_MS
Potassium	3160			ICP_AES	2460			ICP_AES	4290			ICP_AES	4410			ICP_AES
Selenium	1.9	U		ICP_MS	2.0	U		ICP_MS	0.052	J	B	ICP_MS	0.065	J	B	ICP_MS
Silver	0.010	J	B	ICP_MS	0.0091	J	B	ICP_MS	0.031	J	B	ICP_MS	0.033	J	B	ICP_MS
Sodium	219	J	B	ICP_AES	173	J	B	ICP_AES	388	J	B	ICP_AES	371	J	B	ICP_AES
Thallium	0.099	J	B	ICP_MS	0.095	J	B	ICP_MS	0.18	J	B	ICP_MS	0.17	J	B	ICP_MS
Vanadium	17.4			ICP_MS	16.7			ICP_MS	36.0			ICP_MS	33.3			ICP_MS
Zinc	31.8			ICP_MS	29.0			ICP_MS	59.7			ICP_MS	54.7			ICP_MS

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample.

**Table 1A: Analytical Results with Qualifications**

**Lab** Chemtech Consulting Group (CHEM)      **SDGs** MY9SN2 and MY9SN3      **Case** 45139      **Site** Jervis B. Webb Co.      **SOW** ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No: Sample Location: Sample Type: Matrix/Level: % Solids Units :	MY9SQ0 N/A Field_Sample Soil/Low 75.6 mg/kg				MY9SQ1 N/A Field_Sample Soil/Low 81 mg/kg				MY9SQ2 N/A Field_Sample Soil/Low 92.9 mg/kg				MY9SW9 N/A Field_Sample Soil/Low 87.8 mg/kg			
	Compound	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com
Aluminum	20000			ICP_AES	15700			ICP_AES	7690			ICP_AES	11800			ICP_AES
Antimony	0.95	R	A,C	ICP_MS	0.86	R	A,C	ICP_MS	0.76	R	A,C	ICP_MS	0.79	R	A,C	ICP_MS
Arsenic	2.4			ICP_MS	1.3			ICP_MS	6.3			ICP_MS	1.5			ICP_MS
Barium	168			ICP_MS	93.3			ICP_MS	55.1			ICP_MS	121			ICP_MS
Beryllium	0.48	J	E	ICP_MS	0.32	J	B,E	ICP_MS	0.15	J	B,E	ICP_MS	0.35	J	B,E	ICP_MS
Cadmium	0.24	J	B	ICP_MS	0.12	J	B	ICP_MS	0.034	J	B	ICP_MS	0.14	J	B	ICP_MS
Calcium	19400			ICP_AES	10500			ICP_AES	3800			ICP_AES	6430			ICP_AES
Chromium	21.4			ICP_MS	13.2			ICP_MS	5.9			ICP_MS	14.2			ICP_MS
Cobalt	11.9	J	E	ICP_MS	5.7	J	E	ICP_MS	3.0	J	E	ICP_MS	7.9	J	E	ICP_MS
Copper	23.2	J-	D	ICP_MS	15.1	J-	D	ICP_MS	7.3	J-	D	ICP_MS	16.3	J-	D	ICP_MS
Iron	30600			ICP_AES	25300			ICP_AES	14800			ICP_AES	20900			ICP_AES
Lead	4.7			ICP_MS	3.2			ICP_MS	1.2			ICP_MS	3.8			ICP_MS
Magnesium	11100			ICP_AES	8240			ICP_AES	4400			ICP_AES	6390			ICP_AES
Manganese	426			ICP_MS	233			ICP_MS	152			ICP_MS	334			ICP_MS
Mercury	0.062	J	B	Hg	0.074	J	B	Hg	0.059	J	B	Hg	0.032	J	B	Hg
Nickel	17.3			ICP_MS	9.6			ICP_MS	4.6			ICP_MS	11.3			ICP_MS
Potassium	6100			ICP_AES	4470			ICP_AES	2490			ICP_AES	4210			ICP_AES
Selenium	0.097	J	B	ICP_MS	0.10	J	B	ICP_MS	0.023	J	B	ICP_MS	0.054	J	B	ICP_MS
Silver	0.050	J	B	ICP_MS	0.033	J	B	ICP_MS	0.012	J	B	ICP_MS	0.026	J	B	ICP_MS
Sodium	714			ICP_AES	1200			ICP_AES	562			ICP_AES	309	J	B	ICP_AES
Thallium	0.25	J	B	ICP_MS	0.13	J	B	ICP_MS	0.084	J	B	ICP_MS	0.18	J	B	ICP_MS
Vanadium	44.9			ICP_MS	25.4			ICP_MS	15.8			ICP_MS	32.4			ICP_MS
Zinc	74.1			ICP_MS	43.9			ICP_MS	25.4			ICP_MS	55.0			ICP_MS

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample

Lab Chemtech Consulting Group (CHEM)

SDGs MY9SN2 and MY9SN3

Case 45139

Site Jervis B. Webb Co.

SOW ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No: Sample Location: Sample Type: Matrix/Level: % Solids Units :	MY9SX0				MY9SX1				MY9SX2				MY9SX3						
	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method			
N/A Field_Sample Soil/Low 93.5 mg/kg					N/A Field_Sample Soil/Low 88 mg/kg					N/A Field_Sample Soil/Low 79.8 mg/kg					N/A Field_Sample Soil/Low 78.6 mg/kg				
Aluminum	7320			ICP_AES	13300			ICP_AES	13500			ICP_AES	18300			ICP_AES			
Antimony	0.72	R	A,C	ICP_MS	0.79	R	A,C	ICP_MS	0.89	R	A,C	ICP_MS	0.88	R	A,C	ICP_MS			
Arsenic	0.71			ICP_MS	1.6			ICP_MS	1.8			ICP_MS	2.0			ICP_MS			
Barium	71.2			ICP_MS	121			ICP_MS	117			ICP_MS	162			ICP_MS			
Beryllium	0.21	J	B,E	ICP_MS	0.41	J	E	ICP_MS	0.37	J	B,E	ICP_MS	0.53	J	E	ICP_MS			
Cadmium	0.092	J	B	ICP_MS	0.14	J	B	ICP_MS	0.17	J	B	ICP_MS	0.15	J	B	ICP_MS			
Calcium	4090			ICP_AES	6950			ICP_AES	8250			ICP_AES	29300			ICP_AES			
Chromium	7.9			ICP_MS	15.6			ICP_MS	15.5			ICP_MS	21.6			ICP_MS			
Cobalt	5.2	J	E	ICP_MS	9.7	J	E	ICP_MS	8.8	J	E	ICP_MS	12.1	J	E	ICP_MS			
Copper	8.7	J-	D	ICP_MS	17.7	J-	D	ICP_MS	19.2	J-	D	ICP_MS	24.7	J-	D	ICP_MS			
Iron	14800			ICP_AES	22500			ICP_AES	22900			ICP_AES	26900			ICP_AES			
Lead	2.5			ICP_MS	4.2			ICP_MS	4.8			ICP_MS	4.7			ICP_MS			
Magnesium	4000			ICP_AES	6650			ICP_AES	7040			ICP_AES	10200			ICP_AES			
Manganese	188			ICP_MS	363			ICP_MS	410			ICP_MS	440			ICP_MS			
Mercury	0.055	J	B	Hg	0.052	J	B	Hg	0.081	J	B	Hg	0.11	J	B	Hg			
Nickel	6.4			ICP_MS	11.9			ICP_MS	11.9			ICP_MS	16.5			ICP_MS			
Potassium	2970			ICP_AES	4710			ICP_AES	4310			ICP_AES	4770			ICP_AES			
Selenium	0.062	J	B	ICP_MS	0.067	J	B	ICP_MS	0.061	J	B	ICP_MS	0.048	J	B	ICP_MS			
Silver	0.013	J	B	ICP_MS	0.032	J	B	ICP_MS	0.031	J	B	ICP_MS	0.066	J	B	ICP_MS			
Sodium	199	J	B	ICP_AES	329	J	B	ICP_AES	471			ICP_AES	2530			ICP_AES			
Thallium	0.11	J	B	ICP_MS	0.18	J	B	ICP_MS	0.18	J	B	ICP_MS	0.22	J	B	ICP_MS			
Vanadium	19.4			ICP_MS	35.2			ICP_MS	33.1			ICP_MS	46.7			ICP_MS			
Zinc	36.9			ICP_MS	56.1			ICP_MS	59.1			ICP_MS	71.6			ICP_MS			

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample

Lab Chemtech Consulting Group (CHEM)

SDGs MY9SN2 and MY9SN3

Case 45139

Site Jervis B. Webb Co.

SOW ISM01.3 Metals by ICP-MS, ICP-AES, and Mercury

Sample No: Sample Location: Sample Type: Matrix/Level: % Solids Units :		PBS01, PBS02, and PBS04 N/A Method_Blank Soil/Low mg/kg															
Compound	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	Result	Flag	Com	Method	
Aluminum	20.0	U		ICP_AES													
Antimony	1.0	U	C	ICP_MS													
Arsenic	0.50	U		ICP_MS													
Barium	5.0	U		ICP_MS													
Beryllium	0.50	U		ICP_MS													
Cadmium	0.50	U		ICP_MS													
Calcium	500	U		ICP_AES													
Chromium	1.0	U		ICP_MS													
Cobalt	0.50	U		ICP_MS													
Copper	1.0	U		ICP_MS													
Iron	10.0	U		ICP_AES													
Lead	0.50	U		ICP_MS													
Magnesium	500	U		ICP_AES													
Manganese	0.50	U		ICP_MS													
Mercury	0.10	U		Hg													
Nickel	0.50	U		ICP_MS													
Potassium	500	U		ICP_AES													
Selenium	2.5	U		ICP_MS													
Silver	0.50	U		ICP_MS													
Sodium	500	U		ICP_AES													
Thallium	0.50	U		ICP_MS													
Vanadium	2.5	U		ICP_MS													
Zinc	1.0	U		ICP_MS													

Com - Comments. Refer to the corresponding section in the Narrative for each letter.  
 D1, D2, etc. - Field Duplicate Pairs; FB - Field Blank, EB - Equipment Blank, BG - Background Sample

## TABLE 1B

### DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review*, January 2010.

- U The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
- J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
- J+ The result is an estimated quantity, but the result may be biased high.
- J- The result is an estimated quantity, but the result may be biased low.
- R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
- UJ The analyte was analyzed for, but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.